

REMARKS

I. Specification

The Examiner objected to the abstract of the disclosure because line 1 thereof contains terms that can be implied, i.e., "is disclosed". Accordingly, line 1 has been amended to recite "A magnetic sensor has a".

II. Claim Objections

The Examiner objected to claims 2 and 3 because of the following informalities: the Examiner asserted that "said interfacing circuit" in claims 2 and 3 lacks antecedent basis. The Applicant has therefore amended claims 2 and 3 to recite "an interfacing circuit".

The Examiner also objected to claim 13 because of the following informalities: the Examiner asserted that "said target" in claim 13 lacks antecedent basis. The Applicant has therefore amended claims 2 and 3 to recite "a target".

Additionally, the term "located" of claims 1 and 10 has been amended to "locatable" in order to clarify that the target is not part of the sensor itself. The Applicant submits that it is clear from the specification that it is not essential that the sensor include the target.

III. Claim Rejections Under 35 U.S.C. §102

Prima Facie Anticipation Under 35 U.S.C. § 102

A general definition of *prima facie* unpatentability under 35 U.S.C. § 102 is provided at 37 C.F.R. §1.56(b)(2)(ii):

A *prima facie* case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability. (*emphasis added*)

"Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983) (citing *Soundscraper Corp. v. United States*, 360 F.2d 954, 960, 148 USPQ 298, 301 (Ct. Cl.), adopted, 149 USPQ 640 (Ct. Cl. 1966)), cert. denied, 469 U.S. 851 (1984). Thus, to anticipate the applicants' claims, the reference(s) cited by the Examiner must disclose each element recited therein. "There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention." *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 927 F.2d 1565, 18 USPQ 2d 1001, 1010 (Fed. Cir. 1991).

To overcome the anticipation rejection, the applicants need only demonstrate that not all elements of a *prima facie* case of anticipation have been met, i. e., show that the reference cited by the Examiner fails to disclose every element in each of the applicants' claims. "If the examination at the initial state does not produce a prima facie case of unpatentability, then without more the applicant is entitled to grant of the patent." *In re Oetiker*, 977 F.2d 1443, 24 USPQ 2d 1443, 1444 (Fed. Cir. 1992).

Ramsden

Claims 1, 2, 5-7, 9, 13, 14 and 17-19 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ramsden (Sensor Applications for Magnetic Materials). Applicants have amended claims 1 and 13 to account for these points of novelty. Claim 1 as amended provides the following language:

A magnetic sensor, comprising a ferromagnetic runner having a shape anisotropy and locatable relative to a target; and a coil structure wound about said ferromagnetic runner, such that when a magnetic field changes direction along an axial length of said ferromagnetic runner, a voltage is induced in said coil structure that is proportional to a time range of change of a magnetic flux thereof.

The scope of the claim has been limited to a magnetic sensor which uses a ferromagnetic runner having a shape anisotropy. The Examiner relies on Ramsden (page 4, FIG. 8) which discloses a general sensor having an inductor wound on a core of soft magnetic material. Ramsden does not disclose a magnetic sensor which uses a ferromagnetic runner having an anisotropic shape. Furthermore, there is no teaching or suggestion disclosed in Ramsden to use a ferromagnetic runner having an anisotropic shape. Utilizing a ferromagnetic runner with an anisotropic shape together with a coil structure wound about the runner enables the magnetic sensor to snap or switch magnetization extremely fast in response to a change in magnetic field direction unlike the general sensor disclosed in Ramsden (Para. 28 of the specification). Consequently, the magnetic sensor of amended claim 1 is highly sensitive and can operate without current or using negligible current.

Having regard to the foregoing, the Applicants respectfully submit that Ramsden fails to disclose every element of claim 1 as amended. The Applicants therefore submit that the rejection to claim 1 has been traversed. Accordingly, the Applicants respectfully request withdrawal of the rejection to claim 1.

Regarding claim 13, the Applicants respectfully submit that the Examiner's rejection to original claim 13 under 35 U.S.C §102(b) is unjustified because the Examiner has failed to demonstrate that the reference cited as a basis for rejecting the claim discloses each and every element of the rejected claim.

The Examiner argues that claim 13 discloses a magnetic sensor which has a ferrous core and a coil structure wound about the core (citing again page 4, FIG. 8 of Ramsden). However, the Examiner has failed to demonstrate that Ramsden disclosed the step of interfacing the ferromagnetic runner and wound structure as claimed. The Applicant respectfully submits that the disclosure of the general sensor of Ramsden (page 4, FIG8.) is silent on the step of interfacing a ferromagnetic runner and the coil structure as claimed.

Nevertheless, in order more adequately to distinguish the subject-matter of claim 13 from Ramsden, claim 13 has been amended and now provides the following language:

A magnetic sensor method, comprising the steps of winding a coil structure about a ferromagnetic runner having a shape anisotropy, such that when a magnetic field changes direction along an axial length of said ferromagnetic runner, a voltage is induced in said coil structure that is proportional to a time range of change of a magnetic flux thereof; and interfacing said ferromagnetic runner and said coil structure to thereby produce a magnetic sensor for magnetically sensing a target, wherein said magnetic sensor is highly sensitive and operates upon a negligible electrical current.

Amended claim 13 now recites that the magnetic sensor has a ferromagnetic runner having an anisotropic shape. The Applicants respectfully note that the arguments presented above in respect of amended claim 1, apply equally to amended claim 13.

Having regard to the foregoing, the Applicants respectfully submit that Ramsden fails to disclose every element of claim 13 as amended. The Applicants therefore submit that the rejection to claim 13 has been traversed. Accordingly, the Applicant respectfully requests withdrawal of the rejection to claim 13.

Since claims 2, 5-7, 9, 14 and 17-19 were rejected in part as being dependent on claims 1 and 13, traversing the rejections of claims 1 and 13 therefore traverses the rejections of claims 2, 5-7, 9, 14 and 17-19. Accordingly, the Applicants respectfully request withdrawal of the rejections to claims 2, 5-7, 9, 14 and 17-19.

II. Claim Rejections – 35 USC § 103

Requirements for Prima Facie Obviousness

The obligation of the Examiner to go forward and produce reasoning and evidence in support of obviousness under 35 U.S.C. §103 is clearly defined at M.P.E.P. §2142:

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

M.P.E.P. §2143 sets out the three basic criteria that a patent examiner must satisfy to establish a *prima facie* case of obviousness necessary for establishing a rejection to a claim under 35 U.S.C. §103:

1. some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;
2. a reasonable expectation of success; and
3. the teaching or suggestion of all the claim limitations by the prior art reference (or references when combined).

It follows that in the absence of such a *prima facie* showing of obviousness under 35 U.S.C. §103 by the examiner (assuming there are no objections or other grounds for rejection), an Applicant is entitled to grant of a patent. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443 (Fed. Cir. 1992).

Thus, in order to support an obviousness rejection under 35 U.S.C. §103, the Examiner is obliged to produce evidence compelling a conclusion that each of the three aforementioned basic criteria has been met. If the Examiner fails to produce such a conclusion for each of the aforementioned criteria, the rejection must be withdrawn.

Ramsden in view of Dezuri et al

Claims 3, 4, 8, 10-12, 15, 16 and 20 were rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over Ramsden in view of Dezuri et al (Development of a Novel Printed Circuit Board Technology of Inductive Device Applications).

The Examiner argues that Ramsden does not teach a manufacturing method of the coil design but that it would have been obvious to a person having ordinary skill in the art to apply the fabrication process disclosed in Dezuri et al to the sensor disclosed in Ramsden. The Applicants disagree with this assessment. The teaching of Dezuri et al is directed to a planar transformer and an active flux gate device. A planar transformer by definition is not a sensor at all and a flux gate device is an active device which requires more than one coil and a high frequency signal to operate. A skilled person would therefore not look to Dezuri et al because the teaching disclosed therein is directed to devices which are either not sensors or which have an entirely different mode of operation from the general single coil sensor of Ramsden.

Hence, the Applicants respectfully disagree with the Examiner's rejection of original claims 3, 4, 8, 10-12, 15, 16 and 20 as obvious because, for the reasons set forth in the preceding paragraph, a skilled person would not look to the teaching of Dezuri et al. Accordingly, the first prong test would not be satisfied.

Nevertheless, claims 3, 4, 8 are now dependent on amended claim 1 and claims 15, 16 and 20 are now dependent on amended claim 13. For the reasons set forth above, amendments to claims 1 and 13 traverse rejections based on

anticipation. Accordingly, the third prong of prima facie obviousness is clearly not met insofar as claims 3, 4, 8 and claims 15, 16 and 20.

With regard to claim 10, the claim has been amended to recite that the ferromagnetic runner has an anisotropic shape. For the same reasons set forth above with respect to amended claims 1 and 13, the third prong prima facie obviousness is clearly not met for amended claim 10 and claims 11 and 12 which claims are dependent on claim 10.

Furthermore, a skilled person wishing to provide a highly sensitive and inexpensive sensor and starting from the device of Ramsden (FIG.8) would not look to Dezueri et al because the teaching disclosed therein is directed to transformers, which are not sensors, and to complex devices which have an entirely different mode of operation from the general single coil sensor of Ramsden. In any event, there is nothing disclosed in Dezueri et al to teach or suggest adopting a ferromagnetic runner having a shape anisotropy together with the other features of amended claims 1, 10 or 13 to provide a highly sensitive and inexpensive sensor. The first prong test is therefore also clearly not satisfied with respect to amended claims 1, 10 or 13 and the claims dependent thereon.

Having regard to the foregoing, the Applicants submit that the amendments made to claims 1, 10 and 13 traverse rejections to claims 3, 4, 8, 10-12, 15, 16 and 20 under 35 U.S.C §103(a) based on Ramsden in view of Dezueri.

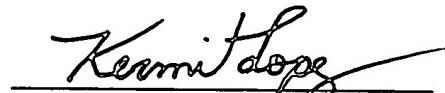
V. Conclusion

The Applicants have amended claims 1, 10, and 13 more particularly to claim the invention. Support for the amendments is within the specification (see lines 15-18, page 8 of the specification) and the specification adequately enables such amendments. Additionally, the Applicants have made clarifying amendments to claims 1 – 3, 10 and 13. It is believed that such amendments do not constitute new matter.

In view of the foregoing discussion, the Applicants have responded to each and every rejection of the Official Action, and respectfully request that a timely Notice of Allowance be issued.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned representative to conduct an interview in an effort to expedite prosecution in connection with the present application. If a telephone conference would be of assistance in advancing the prosecution of this application, the Examiner is invited to call the Applicants' attorney at the below-indicated telephone number.

Respectfully submitted,



Dated: May 16, 2005

Kermit Lopez
Attorney for Applicants and
Co-Applicant
Attorney Registration No. 36,230
Telephone: (505) 314-1312
E-mail: lortiz@olpatentlaw.com